Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

www.mnnps.org

Volume 34, Numbers 1-2 **Summer, 2015**

Minnesota Native Plant Society
A non-profit organization dedicated to the conservation and appreciation of Minnesota's native plants and plant communities through education and public awareness.

Monthly Meetings
Dakota Lodge
Thompson County Park
1200 Stassen Lane
West St. Paul, MN 55118
First Thursday of the month
October – December & February-June.
6:30 PM-Social
7-9 PM- Business and program
Always check website for details or changes

Upcoming Monthly Programs
Fall 2015-Spring 2016

October: Donna Perleberg, Aquatic plant biologist, MN DNR**:** A century of loss in Minnesota's lake plant communities.

November: Susan Wilkins and Marilyn Garber, Minneapolis Parks and MN School of Botanical Art**:** Eloise Butler Wildflower Garden and Florelegium project.

February: Ed Swain, Research Scientist, MPCA & UMN. Update on Minnesota Wild Rice issues.

March: Katy Chayka and Peter Dzuik
Minnesota Wildflowers web page

May: Anna Gerenday
Minnesota Fungi

June: Chel Anderson
Author of recently released book *North Shore*

December and April speakers TBD.

Successful spring symposium

Ninety-six people attended the annual symposium*, Botanical Ramifications of Environmental Change,* held at the Bell Museum of Natural History on March 21. The morning program included an overview of responses to climate change since the last glaciation by Charles Umbanhowar (St. Olaf College); the genetic basis of adaptation by Ruth Shaw (University of MN); and comparisons of early 20th century and present flowering dates in the Red River valley by Steven Travers (North Dakota State University). The afternoon's program included Pati Vitt (Chicago Botanical Garden) addressing translocation, and Jeremy Ash (University of Wisconsin) recent floristic changes in Wisconsin forests.

The program was planned to reflect our membership, which is a mix of amateurs and professionals. The majority of attenders were members of the society, with nearly half professionally involved with native plants in some capacity. We appreciate feedback from 58 people who completed the evaluation form. Some were challenged by the content, with comments like, "What does this mean to me?" or "An entire plant society program based on climate change was too much." Others liked the theme-based approach with "Great speakers that complemented each other."

Special thanks to the speakers and to all who made the symposium a success by planning, registering and greeting attenders, handling the catering and finances, designing the brochure and program, promoting the event, and troubleshooting the speaker system!

Society leadership as of June 2015

Board members' names are followed with the year their term expires in parentheses.

President: Mike Lynch (2017)

Vice President: Shirley Mah Kooyman

Secretary: Rob Cahalan (Board 2017)

Treasurer & Membership Database:
Ron & Cathy Huber

Field Trip Organizer: Ken Arndt (2016)

Programs : Jyneen Thatcher (2016) and
Scott Milburn (2018)

Newsletter: Nancy Sather

Webmaster: In transition, TBD

Social Coordinator: Shirley Mah Kooyman

Social media: Mike Lynch (2017)

Symposium: Otto Gockman (2017), Nancy Sather, and Shirley Mah Kooyman

Other Board members

Steve Eggers (2018)

Welby Smith (2016)

John Arthur (2018)

Technical or Membership Inquiries:
contact@mnnps.org

Special thanks for her service to Angela Anderson, who recently left the board and to Welby Smith, who is filling out her term.

You do not have to be a board member to take on a leadership role in the Society. We can especially use help with hospitality and logistics at monthly meetings. Suggestions for monthly speakers are always welcome.

MNNPS welcomes new members

Ron Huber

The Society gives a warm welcome to 22 new members who joined during the first quarter of 2015. Listed alphabetically, they are:
Jeremy Ash, Madison, WI
Judy Beckman, Fairmont, MN
Nancy Braker, Northfield, MN
John Bujan, Minneapolis, MN
Judy & Randy Calcote, Roseville, MN
Mark Fulton, Bemidji, MN
Dustin Graham, Minneapolis, MN
Kevin Halling, Rochester, MN
Andy Huston, Burnsville, MN
Janice Johnson, Bigfork, MN
Sharri M. Keller, Minneapolis, MN
Marcela Kelton, Stillwater, MN
Elizabeth Lynch, Decorah, IA
Jim McCluskey, Bigfork, MN
Brian W. Olson, Maple Grove, MN
David Remucal, Chaska, MN
Christine Steinwand, Roseville, MN
Roxanne Stuhr, Minneapolis, MN
AmberBeth Van Ningen, Ely, MN
Jeannette Wallen, Wyoming, MN
Chester Wilson, Minneapolis, MN

Between 2002 and 2014 our membership ranged from 295 to 393 members, with an average of 352. Membership in 2014 was 313. Each year we both gain and lose members. Your Board welcomes suggestions about how we might attract and retain members. The MNNPS membership year starts January 1. Dues may be paid at the February meeting or mailed to P.O. Box 20401, Bloomington, MN 55420.

Membership categories are:
- Individual or family $15
- Student or senior $8
- Institution $20
- Donor $25
- Lifetime $300

MNNPS Field Trips for 2015

If you haven't gone on one of the society's field trips, then we encourage you to sign up for one. Attending one of the society's field trips is a great way to see some of Minnesota's many different native plant communities and to meet others who share a similar interest in native plants. Information for all of the field trips is posted to the website regularly as each trip becomes finalized. Members for whom we have e-mail addresses also receive periodic updates.

The field trip year got off to a good start with trips to Coldwater Spring, Eloise Butler Wildflower Garden, Minnehaha Falls, Savage Fen, Carpenter Nature Center, and Springbrook Nature Center. Please keep checking the website over the summer to see what new trips may be added. Most trips have a limited number of registrants due to site sensitivity, so registering early is encouraged. You can register for most field trips by going to the field trip page on our website www.mnnps.org Field trips are just one of the many benefits of being a member of our society so if you haven't already joined, now is the time before the field trip you want to attend fills up.

You do not have to be a natural resource professional to lead a trip! To do so, just contact the Trip Coordinator, supplying the details normally listed on the web site.

UPCOMING events co-sponsored by MNNPS:

Friday August 21st (exact time TBD)
A Look at Wetland Plant Communities
Sherburne National Wildlife Refuge
Leader: TBD

This is a joint field trip with the MN Wetland Professionals Association and will have a fee to cover it for transportation and lunch costs. More details on this trip will be posted on the MNNPS website www.mnnps.org or check the MN WPA website at: http://www.mnwetlandprofessionals.org/announcements.html

Friday-Sunday, August 21-23:
2 ½ day retreat in Des Moines River drainage
Leader(s): Nancy Sather, Ecologist
Marilyn Garber, former president of American Society of Botanical Artists
This joint retreat with the MN Minnesota School of Botanical Art and has a fee for lodging and meals and blends short field forays with art experiences. .
http://www.minnesotaschoolofbotanicalart.com/resources/Word-Documents/Prairie-Perspectives-2.pdf

Other opportunities to get into the field

Saturday June 27th, 2015
Sax-Zim Bog's 3rd Annual BioBlitz
Leaders: Friends of Sax-Zim Bog
More info at: info@saxzim.org

Between July 1-14 (exact dates TBD) Count or monitor western prairie fringed orchids
e-mail Derek.Anderson@sstate.mn.us

Friday July 10th – Saturday July 11th
Simon Lake 24-hour BioBlitz
Upper MN River valley. More information at: 320-269-2105, rmoore@landstewardshipproject.org

Wednesday, July 22
MN Traveling Invasive Species Workshop
Elm Creek Park Reserve Chalet
http://minnsotaswcs.org

August 22 and September 16
Great River Greening Million Acorn Challenge
Help restore oak savannas in the Twin Cities
http://www.greatrivergreening.org/events/million-acorn-challenge-2015/

Summer long
DNR guided trips and volunteer opportunities:
A rich offering of trips and SNA volunteer opportunities can be viewed at:
http://www.dnr.state.mn.us/volunteering/sna/index.html

Highlights of 2015 field trips
Savage Fen and Carpenter Nature Center

June 6 fen trip
Photo by Mike Lynch

Savage and Seminary Fens (left)
On Saturday, June 6, a group of 13 people joined Corps of Engineers Senior Ecologist Steve Eggers for a day-long exploration of two of the Lower Minnesota River valley's remaining calcareous fens, characterized by sloping, calcareous, organic soil with springs and small, groundwater-fed, marl streams near Savage and Chaska/Chanhassen.

Carpenter Nature Center (below)
Participants in the June 14 trip led by MNNPS board member Jyneen Thatcher climbed down into the ravine at Carpenter Nature Center. No one got hurt, but some got muddy. We found bulblet fern (*Cystopteris bulbifera*), fragile fern (*Cystopteris fragilis*), maidenhair fern (*Adiantum pedatum*), walking fern (*Asplenium rhizophyllum*), and many species of mosses and lichens.

At left below, MNNPS members stop to discuss and photograph the lily-leaved twayblade (*Liparis liliifolia*) along a trail at Carpenter Nature Center. The orchids were in full bloom, but well camouflaged. This patch has been present for several years, and includes more than 50 individuals. At right, Tom Casey takes a photo of the walking fern. This fern was conveniently located, on the top and side of a limestone boulder. Associated plants were bulblet fern, columbine, round-leaved hepatica, several sedges, and multiple forms of mosses and lichens.

Photo by
Doug Mensing

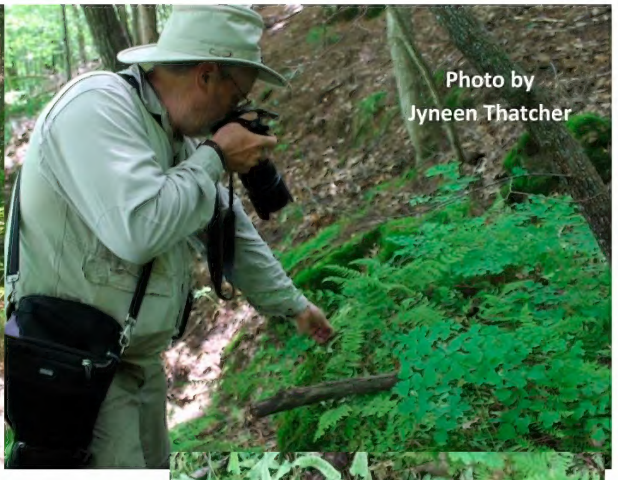


Photo by
Jyneen Thatcher

Walking fern (*Asplenium rhizophyllum,* formerly *Camptosorus rhizophyllus*) has been found in several sites at Carpenter Nature Center. We visited one of those sites. The walking fern can regenerate by rooting at the tip of the frond, and is found on the face of limestone outcroppings and boulders.

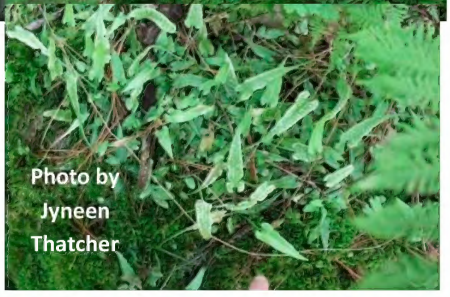


Photo by
Jyneen
Thatcher

Writing About Nature for Children

Phyllis Root, writer and presenter at the December 2014 MNNPS meeting

Ever since I moved to Minnesota in 1975, I have loved being outside in the state's beautiful wild (and not so wild anymore) places, but until I started writing non-fiction picture books, I had no idea that a whole world of native plants and places existed that I wasn't seeing. When I agreed to write a Minnesota counting book, I needed to learn about that world, which involved trips to the Big Bog, visits to Scientific and Natural Areas, and treks through old growth forests—all of it new and amazing and wonderful. I wanted to capture that sense of discovery so that children would feel it and want to go see and discover for themselves.

In the process of research, I've learned so much—and learned how much I don't know as well. And in the process of writing, I've been learning how to take an idea and give it shape and substance for young readers. I hope if you are not already writing for children, you'll consider sharing your knowledge and passion with them. Although everyone has a different writing process, here are a few guidelines I follow when I set out to write a picture book.

1. Write about something you care about. Nothing has more power in writing than something you feel passionately about. If the writer is bored, chances are the reader will be bored.

2. No matter the age of the audience, don't write down to them. Young children love the sound of words. What's not to love, for example, about *foxglove beardtongue*? The writer's job is to provide clarity of concepts and ideas.

3. Find a focus. I may have an idea going in about what I'd like to focus on, or I may wander a very long time in the research until I find something that calls to me. Once I find the focus, it's a hook from which the whole story can hang. I couldn't make *Big Belching Bog* work as a book about the bog until I realized the power of that mysterious belch to lure a reader along.

4. Invite children into a book. Make them want to turn the pages to see what happens next. Non-fiction for children is more than a series of facts. It's a narrative about something, a kind of story that entices the reader to want to turn the pages.

5. Research, research, research. Educate yourself on whatever you don't know. Talk to experts. Visit sites. Read books. Children deserve the best and most accurate information we can give them.

6. Write, write, write. Don't be dismayed by many, many drafts. Writing is often a wandering around inside a story to find the path that will lead straight through from beginning to end.

7. Rewrite, rewrite, rewrite. All writing is practice and all writing makes us better writers.

8. Enjoy the process.

We can't love what we don't know, and books about nature for children that entice and entrance help children know, and, I hope, love this world we inhabit. If knowing leads to loving, and loving leads to helping protect our wild plants and places, as my friend would say, "What's against it?"

Summary of February 5, 2015 monthly meeting
Rare plant conservation at the Minnesota Landscape Arboretum.
David Remucal, PhD. Curator of Endangered Plants. Minnesota Landscape Arboretum

The Minnesota Landscape Arboretum has historically been known for the aesthetics of its gardens, the impressiveness of its woody collections, and the horticultural research that has produced many well-known breeds of apples, grapes and ornamental plants. It hasn't been known for conservation research. Conservation efforts have been part of the Arboretum since early in its history, but they have focused on landscape level conservation. The best example of individual species preservation at the Arboretum has been the establishment of colonies of dwarf trout lily (*Erythronium propullans*). These colonies were established starting in the early 60s, well before the state endangered species list. For many years Rolf Dahle monitored these colonies as a volunteer both with the DNR and Arboretum.

In conjunction with the recent partnership with the Center for Plant Conservation (CPC), the Arboretum has made a commitment to native plant conservation and research. The CPC is a consortium of some of the top botanic gardens and arboreta around the country with the mission of preserving the nation's most threatened plant species. The Arboretum has responsibility for seven species: *Besseya bullii* (kittentails), *Chrysosplenium iowense* (Iowa golden saxifrage), *Erythronium propullans* (dwarf trout lily), *Oxytropis campestris* var. *chartacea* (Fassett's locoweed), *Platanthera praeclara* (western prairie fringed orchid), *Polemonium occidentale* ssp. *lacustre* (western Jacob's ladder), and *Rhodiola integrifolia* ssp. *leedyi* (Leedy's roseroot). The CPC focus on preservation is primarily *ex situ* conservation designed to take advantage of the strengths of botanic gardens: the horticultural/botanical expertise, the volunteer base and the communication/education opportunities with visitors. For most species in temperate regions *ex situ* conservation is largely accomplished through creation of a seed bank that can be stored for long periods of time in cold temperatures. *Ex situ* conservation is an increasingly important strategy complimentary to traditional *in situ* conservation work, such as landscape preservation, due to the dual threats on landscapes of direct human activity and increasing climate change. That being said, we are going to be involved in *ex situ* work only when necessary. For some species, such as the western prairie fringed orchid, there are already an array of researchers doing monitoring of this species, as well as other ecological and propagation research, so we will focus mostly on genetic storage. For others, such as the western Jacob's ladder, there is a greater need for us to do monitoring as well as our *ex situ* work.

In addition to our rare plant work, we are also starting a new native orchid conservation program. This program is state-funded and will work towards the protection of all of Minnesota's native orchid species. Like the rare plant work, this will be done through seed banking as well as research on how to reintroduce orchids to appropriate landscapes. Orchid ecology is complex so propagation work with orchids will necessarily involve working with fungal associates as well as the plants themselves. This is an ambitious program but it should allow people to see some of Minnesota's hard-to-reach gems without having to visit, and disturb, their natural habitats.

With our plant conservation program, as important as the research and conservation activity is it is just as important to keep the public informed about our work. This can be done through the recruitment of volunteers as well as through the more traditional signs and brochures one might find at a botanic garden. Volunteer effort is vital for the success of a program like this and our hope is that we can develop a new force of volunteers doing conservation work for the benefit of Minnesota's native plants and not just the rare ones. Ultimately we would like to establish the Arboretum as a regional center for native plant conservation and research, rare or otherwise. Working on conserving and understanding rare plant work is important and so is doing work on species before they become rare so that when, or if, that happens we have that knowledge in hand.

Potential hydrologic and ecologic impacts of EAB on black ash wetlands.

Chris Lenhart, University of Minnesota

Presenter at our March meeting

The Emerald Ash Borer threatens to wipe out hundreds of thousands of acres of black ash forested wetlands in northern Minnesota. In order to better understand the ash borer threat to ash forests, a study was initiated in 2011 with funding from Minnesota's LCCMR. Tony D'Amato, Rob Slesak and Brian Palik from the University of Minnesota (UMN), Forest Resources Council and U.S. Forest Service were principal investigators. Chris Lenhart, of the Bioproducts and Biosystems Engineering Department and Ken Brooks, emeritus professor at UMN coordinated the hydrology study for the first few years in the Chippewa National Forest. In the March Native Plant Society meeting, Lenhart discussed hydrologic research on the water sources to the wetlands, their geomorphic setting and hydrologic regime and implications for water level and forest management. Geochemical and hydrologic data indicated that most of the water originates from surface water sources: rainfall, runoff and snowmelt and not deep groundwater discharge at these study sites. This was somewhat surprising as black ash wetlands had often been characterized as groundwater-dominated systems. The hydrologic setting of these wetlands suggest that tree mortality from the ash borer might have substantial impacts on the water levels in the wetland, potentially shifting plant community types. In fact the initial research from experimental tree cutting and girdling experiments in the Chippewa National Forest did show a slight rise in water table in those plots. That research is summarized in a 2014 article in the *Canadian Journal of Forest Research* by Slesak et al

Carmen Converse retires from DNR's Minnesota Biological Survey

MN DNR photo

After 28 years as coordinator of the Minnesota Biological Survey, MNNPS Honorary Life Member Carmen Converse retired in early June. Carmen was among the first botanists with MBS when it began with surveys in 6 western prairie counties and Washington County as part of the Minnesota Natural Heritage Program. In 1987, MBS was spun off as a separate program under Carmen's leadership. Since that time it has received ongoing funding from the Environment and Natural Resources Trust Fund, resulting in data that are used to prioritize land conservation and sustainable resource management that considers native species, natural landscapes and ecological processes.

Today with a staff of 30 full time natural resource professionals, the program has completed initial surveys in 82 of the state's 87 counties, with ongoing surveys in an additional 6 counties. MBS biologists have recorded 25 species not previously documented in Minnesota; conducted aquatic plant surveys in over 1,500 lakes; and added over 15,000 new records of rare plants and animals to the DNR's Natural Heritage Information System (NHIS). The program has produced printed and/or digital maps of native plant communities and rare species for 56 counties and 3 Ecological subsections. A map of remaining native prairie statewide was instrumental in developing the state's prairie plan and is widely used for educational purposes. With new technologies not available 20 years ago, new staff are re-surveying areas that were missed in early surveys. The program has incorporated federal rare plant monitoring begun by the Natural Heritage program in the 1980s, and expanded its monitoring component to add prairie monitoring on grazed and ungrazed lands, the status of small white lady slippers, and potential impacts of white nosed bat syndrome.

New leaders of the program are no strangers to MNNPS members. Coordinator Bruce Carlson has been Regional Ecologist for the DNR in northeastern Minnesota for over a decade and before that worked as a Botanist/Ecologist with MBS. Former DNR central regional ecologist Hannah Texler joins the program's leadership team to coordinate the activities of plant ecologists and botanists.

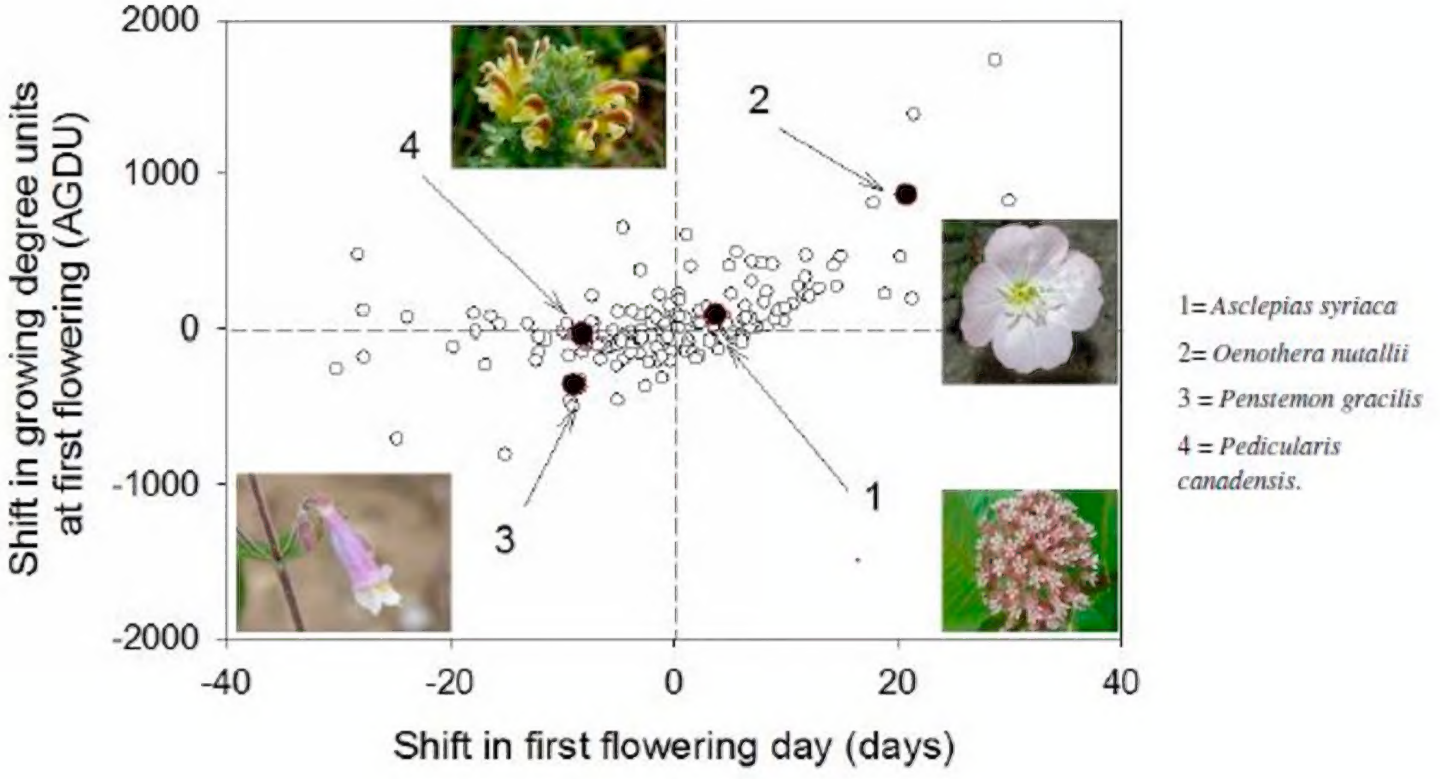
A century of shifts in flowering phenology in the Red River valley

Summary of research by symposium speaker Steven Travers, North Dakota State University

Steven Travers, with contributions by Nancy Sather

Contemporary timing of phenological events in Red River Valley native plants can be compared to the same species 100 years ago. Between 1910 and 1961, NDSU pioneering botany professor O.A. Stevens travelled by public transportation to observe the first dates of flowering in the Fargo-Moorhead area. One of his sites was what is now TNC's Bluestem Prairie Preserve near Buffalo River State Park. Travers and his students at NDSU extracted first flowering dates from Stevens' notebooks and compared them with present first flowering dates in the Red River valley. Present Minnesota growing seasons are roughly 2 weeks longer than they used to be 100 years ago. Some species track temperature trends and are flowering earlier; others flower later; and some have not changed.

In the figure below, the zeros on both axes represent the baseline conditions observed by O. A. Stevens. Growing degree units (vertical axis) are a measure of accumulated daily temperatures since the start of the growing season. If neither the accumulated daily temperatures at time of first flowering or length of the growing season (horizontal axis) had shifted, all the species would be clustered around the middle of the graph like common milkweed (*Asclepias syriaca*), which is an example of a species that has barely shifted first flowering to keep up with the changing seasons. As shown in the graph, species best able to shift their first flowering dates tend to be early blooming species like wood betony (*Pedicularis canadensis*) and slender beardtongue (*Penstemon gracilis*). Some later flowering species like Nuttall's evening primrose (*Oenothera nuttallii*) have adapted to the longer warm season by shifting first flowering later. The lower right quadrant of the diagram represents the situation in which species take longer to flower to adjust to a longer tail end of the season. Notice how few species are making this adjustment. There is some suggestion that the absence of shifting may be associated with decreased long term viability.



. Graph by Steven Travers

What can MNNPS members do to contribute to knowledge of the state's flora?

Members of MNNPS are familiar with Society's monthly meetings, field trips, and annual symposium, but in comparison with some societies, our efforts pale. For example, we still need an active conservation committee and more involvement by a broader contingency of members in leading field trips and helping with monthly meetings. Although we do not have the resources of the New England Wildflower Society or the California Native Plant Society, there are ways that individual members can contribute to knowledge of the state's flora. One way is to join an organized bioblitz (See page 3 of this newsletter for some opportunities). Another is to formally document the plants you see on your personal forays.

During the early years of statehood, amateur botanists regularly collected plants and corresponded with the state's professional botanists. Country doctors and teachers contributed collections to the expanding state herbarium. At present, the majority of formally documented plant locations in the state are collected by DNR employees, botanists affiliated with private consulting firms, non-profits, other agencies, and the Minnesota Wildflowers project. The age of discovery is not over! New native species are intermittently found in the state and range extensions or county records are easy to document.

Members can bring their recreational botanizing to a higher plane by using a GPS and a camera to document rare finds and passing this information on in a timely manner to the DNR (contact welby.smith@state.mn.us or derek.anderson@state.mn.us). It is important that these reports be sent immediately, so they can be verified by someone with a collection permit during the same season. Don't be worried about "protecting" your secret location. A collector with a permit is accountable for his or her collections. Professional botanists will not extirpate your populations—but if they remain undocumented development may! Although it is illegal to collect endangered or threatened plants without a permit, special concern plants are not afforded this formality. You can access the list of protected plants on the MNDNR website (http://www.dnr.state.mn.us/ets/index.html), or if you are using Minnesota Wildflowers, you can find protection status for affected species on that page (https://www.minnesotawildflowers.info/

In these times of climate change and other environmental stressors, understanding the county distribution of both rare and common species is more important than ever. Many plants have not been formally documented in all counties in which they occur. Members can fill in the gaps of formal documentation if they are in a place where it is legal to collect. State Parks, SNAs, TNC Preserves, and some federal lands do not allow collection without a permit.

How would you know if a species has been documented in a certain county? The Minnesota DNR maintains a checklist of documented county distributions (http://files.dnr.state.mn.us/natural_resources/plants/mntaxa_metadata.pdf). Once on the web page, you can select counties for which you'd like a list, or you can access maps of the statewide distribution of all species. Customized printouts can help you figure out what might or might not be in your area of interest and are handy if you don't have a mobile device. You may notice a difference in the distributions presented on the Minnesota Wildflowers web page and those from MNTAXA. This is because MN Wildflowers draws from a number of credible secondary sources, and from sightings of plants, whereas MNTAXA is linked to the Bell Museum Herbarium and the Lakela Herbarium at UMD. You may also notice a discrepancy if you use the Bell Museum web page to retrieve information on former collections. This is because the webpage is based on accessioned collections and the herbarium has a huge backlog. By submitting collections to the Herbarium by way of Welby Smith at the DNR you will have the double benefit of assuring verification of your collection and of seeing it appear in MNTAXA before it moves through the queue at the herbarium. For guidelines on collection and pressing see the herbarium webpage http://www.bellmuseum.umn.edu/ResearchandTeaching/Collections/ScientificCollection/PlantCollection/).

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Minnesota Native Plant Society

P.O. Box 20401
Bloomington, MN 55420

SUMMER 2015

Dakota Lodge, Thompson County Park
1200 Stassen Lane, West St. Paul, MN 55113

Directions:
Take Highway 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to the parking lot at the end of the road in Thompson County Park